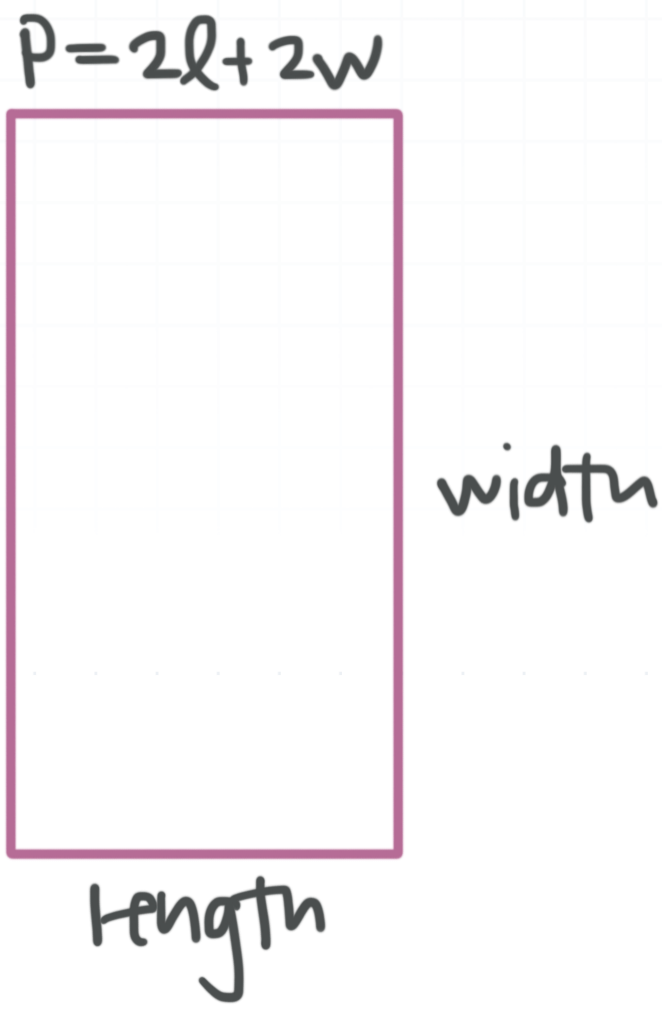
Perimeter of a rectangle

The perimeter of a rectangle is the length of the boundary around the figure. You can find the perimeter of a rectangle by calculating the sum of the length of its four sides. Sometimes you'll see the perimeter formula as

$$P = 2l + 2w$$

where l is the length of the rectangle, and w is the width of the rectangle.



Let's do a few examples.

Example

What is the perimeter of the rectangle?

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You can find the perimeter by plugging the length and width that we've been given into the formula for the perimeter.

$$P = 2l + 2w$$

$$P = 2(20) + 2(16)$$

$$P = 40 + 32$$

$$P = 72 \text{ in}$$

Remember that opposite sides of a rectangle are equal in length, so you could also find the perimeter by adding all of the side lengths together.

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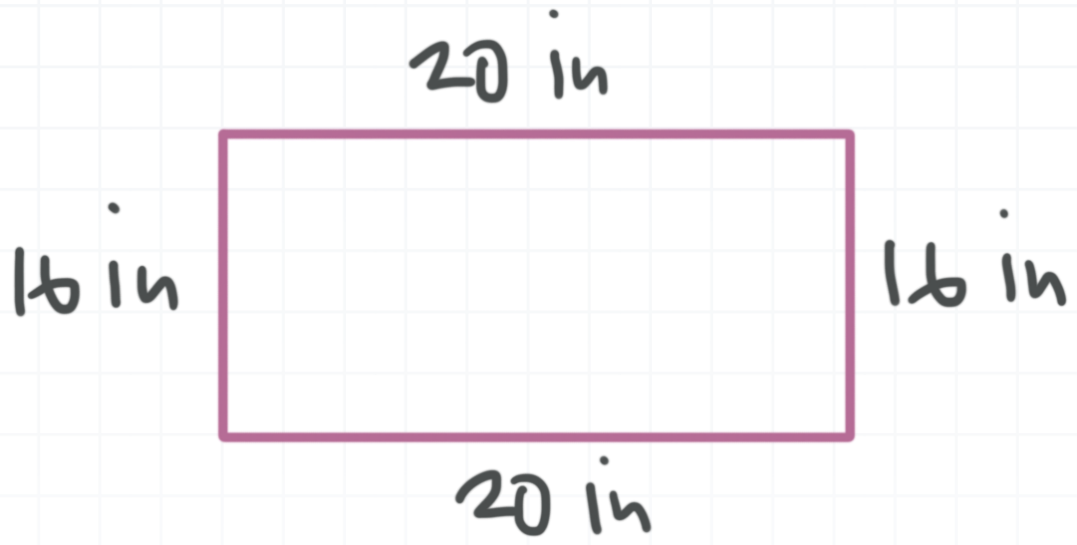

$$P = 20 + 16 + 20 + 16$$

$$P = 72 \text{ in}$$

Sometimes you'll be given the coordinates of a rectangle in a coordinate plane and asked to find the perimeter.

Example

A rectangle has one vertex at $(1,1)$ and the opposite vertex (the vertex that's connected to $(1,1)$ by the diagonal) is at $(8,7)$. What is the perimeter of the rectangle?

Drawing a sketch of the rectangle on the coordinate plane can help, so start by plotting the points.

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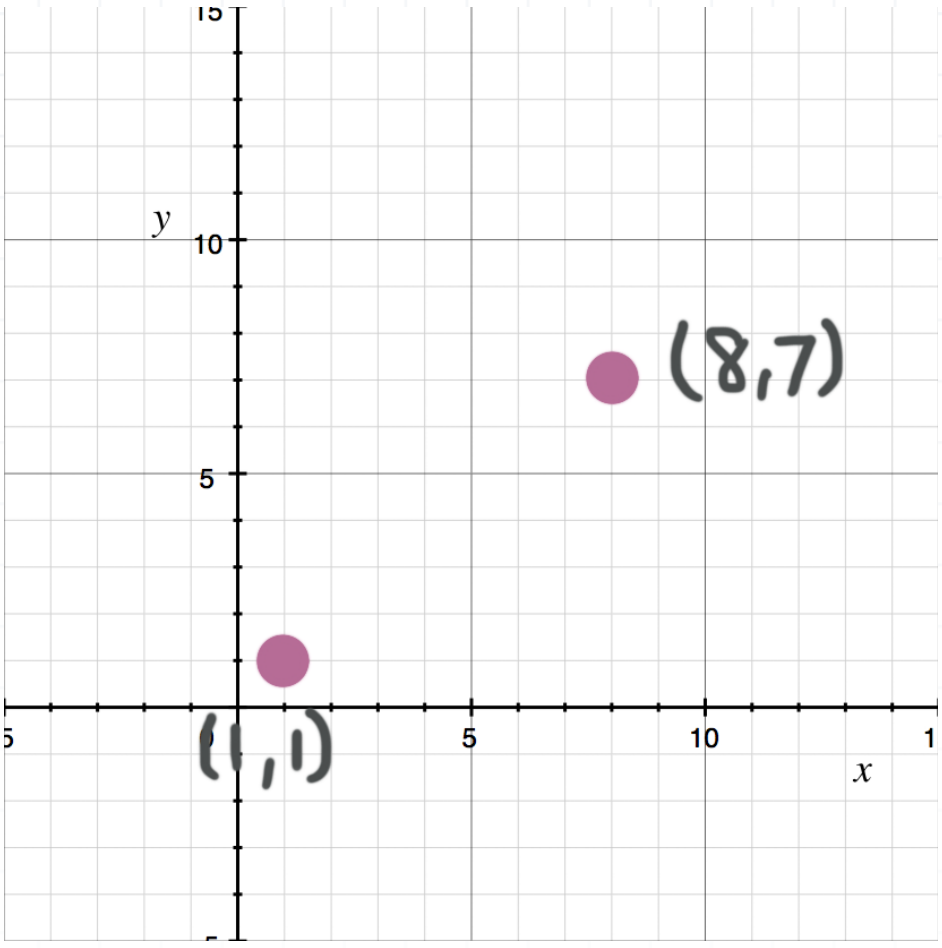

Now draw in the rectangle.

Count the length of each side.

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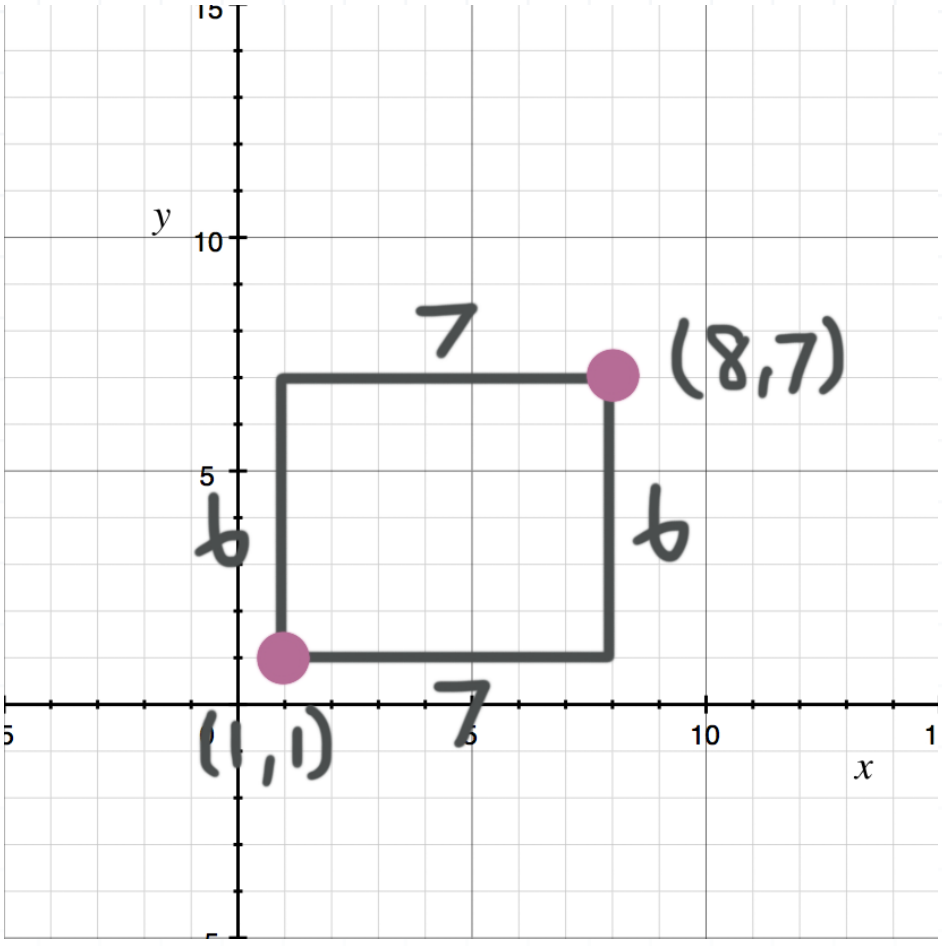

Add the side lengths to find the perimeter.

$P = 6 + 7 + 6 + 7 = 26$ units

Other times you might need to perform a few calculations first before you can find the perimeter.

Example

What is the perimeter of the rectangle that has an area of 96 units^2 and a length of 8 units?

We need to know the dimensions of the rectangle in order to find its perimeter. We know the area is 96 units^2 and that is has a length of 8 units.

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$$A = lw$$

$$96 = 8w$$

$$w = 12$$

Now we can find the perimeter.

$$P = 2l + 2w$$

$$P = 2(8) + 2(12)$$

$$P = 40 \text{ units}$$

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